



# Solution? Evolution? Or revolution?

Evaluating classroom environments.

Why it is essential? And what does it do for schools, teachers and students?

**Dr Terry Byers** and **Wesley Imms** tell us why they believe the University of Melbourne's ILETC research project to be critical.

**T**here is little doubt that the design of learning spaces is undergoing a fundamental change at the moment, but why should the evaluation of those spaces be a priority? These so called '21st Century', 'flexible' or 'Innovative Learning Environments' (ILEs) are argued to be able to shape behaviour and experiences to affect





a desired pedagogical change. The Organisation for Economic Cooperation and Development (OECD) describe ILEs as multi-modal, technology-infused and flexible learning spaces that are responsive to evolving educational practice. Authors suggest that the synergy of architecture and technologies (both digital and spatial) can facilitate a paradigm shift to learning from traditional or teacher-led pedagogies to more contemporary or student-centric learning modalities. Here there appears to be a rejection of the prevailing teacher-centred conventional or cellular classrooms in favour of flexible and learner-centred environments, which range from adaptive, purposeful spaces through to open-plan. The resulting allure of ILEs has seen them become a matter of policy and systemic investment, with OECD countries like Australia and New Zealand directing more than AUS\$16B of public funding in building projects since 2009, and currently allocating up to \$7B per year in future infrastructure. This is a huge investment. On what grounds is it warranted? Where is the evidence?

### **Paucity of Evidence about the Impact of Different Learning Environments**

Because of the current interest and public investment in ILEs, one would expect there to be a substantive evidence base supporting the various assertions made to date. Reviews of the literature around ILEs consistently cite a lack of substantive, empirical data to adequately evaluate the claims purported about their impact on teachers and students. Often these conversations about new learning environments have been driven by conjecture, small sample qualitative case studies, or post-occupancy evaluations of tertiary spaces that lack pedagogic focus.

Hayward Midson Creative  
Precinct courtesy of Brand and  
Slater Architect



A particular shortcoming is a seeming lack of understanding of exactly what happens in these new spaces, and how teachers navigate different ways of working. This is possibly because we do not really know how to evaluate such spaces - there are few effective evaluative frameworks able to elicit the evidence concerning their pedagogical effect and if student learning experiences and outcomes are impacted upon in any way (positive or negative).

For these reasons, evaluation will be central to ensuring the current euphoria around ILEs will last beyond an 'educational fad' and achieve their promised potential. Evaluation is critical here; it affords the opportunity to investigate not only 'what works' (or does not), but also 'why'. The open-plan movement of the 1960's and 70's failed due to its overt architectural focus, lack of teacher consultation through the design process (often without taking into account the school context), and limited guidance or professional development or teachers through the initial occupation. The absence of evaluation meant that the same issues were replicated time and time again, with little support for teachers to align their practices and pedagogies to the architectural affordances of the open-plan design. The open-plan movement is often considered an architectural failure, but the cause stems from many teachers unable to adapt to, and therefore working against, a space that was radically different from what they were accustomed to. But, this is not the fault of the teacher. Open-plan spaces, their design and implementation into schools, presented a chasm of change too great for teachers to traverse with little in-situ support.











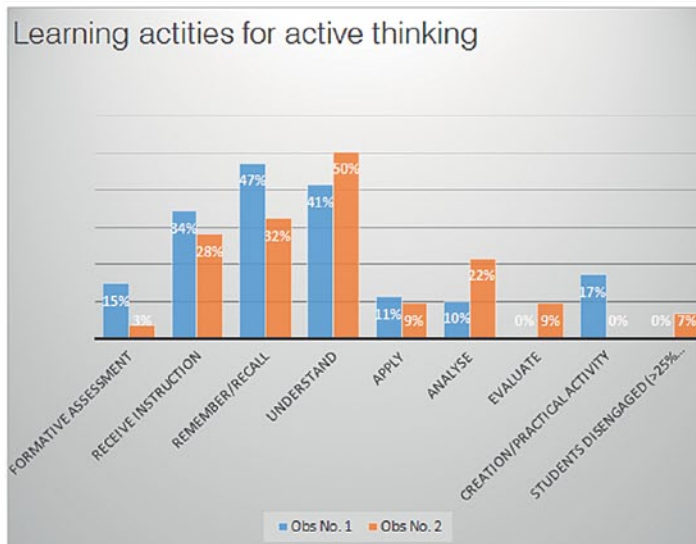


### **The Anglican Church Grammar School (Churchie) and LEaRN partnership**

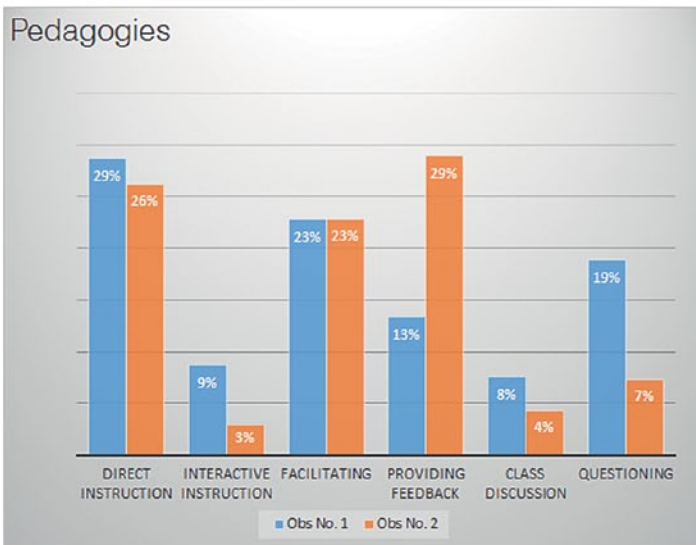
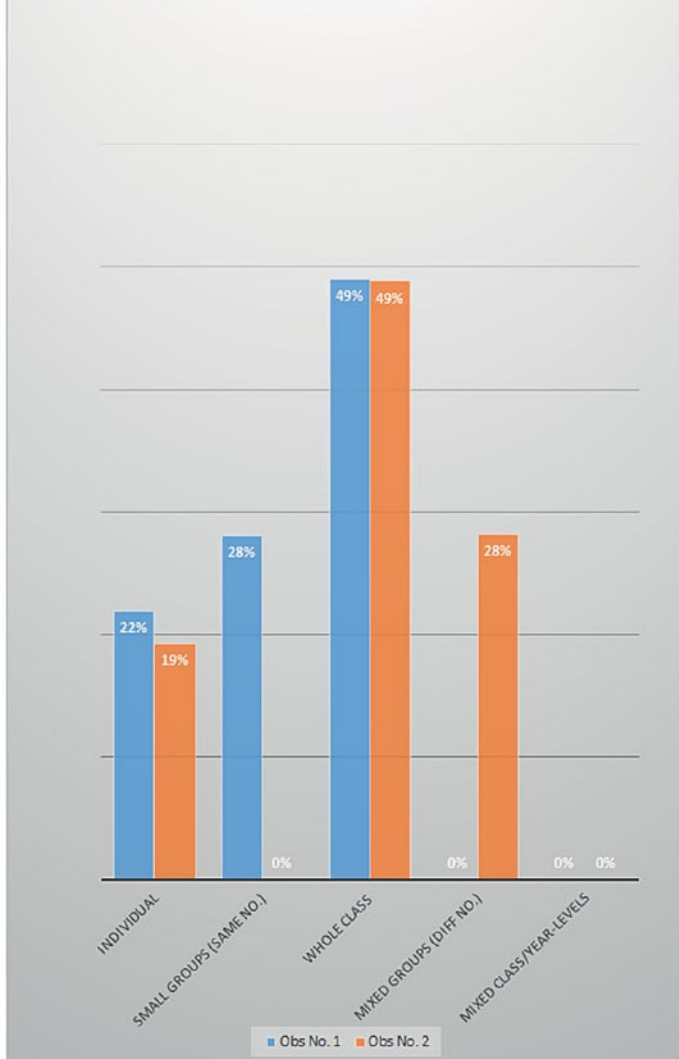
There are a small number of examples where evaluation of different learning spaces has driven sustained and measured improvement in schools. One such example is a seven-year partnership between Australia's Anglican Church Grammar School (Churchie) and the University of Melbourne's Learning Environments Applied Research Network (LEaRN). The partnership started with the modest refurbishment of a single classroom space in 2011. The aim was to develop an evidence base and corporate understanding that would inform two building projects in that school; the 'Hayward Midson Creative Precinct' and 'the Centenary Library'. The iterative and longitudinal process of evaluation not only identified the design, materials, and technologies that worked (and those that did not), but also developed the knowledge and skills of its teachers.

This partnership between Churchie and LEaRN was further reinforced by two Australian Research Council Linkage Projects; Evaluating 21st Century Learning Environments (E21LE) and the follow-on Innovative Learning Environments and Teacher Change (ILETC) project. Both supported the development of evaluative methods and tools capable of isolating the impact of different learning spaces, pedagogies, and technologies on teaching and learning. Central to both projects was the provision of continuous feedback to individual teachers, which assisted them to not only develop a pedagogical understanding of what different spatial layouts (both traditional and ILE) could or could not support but also, improved their general teaching practice. Statistically significant improvements in student academic outcomes were correlated to those teachers that exploited the affordances of both digital and spatial technologies with a responsive pedagogical approach.

A key finding of the research at Churchie was that the practice of these teachers neither conformed to traditional or progressional pedagogical models. The greatest academic gain was observed in those teachers whose dominant pedagogical approach was best described as full-guided instruction. Repeated lesson observations revealed that unlike the overtly didactic, whole class and lock-step instruction observed in a traditional layout (static desks arranged in a set layout facing the front of the room), in an ILE these teachers significantly refined their explicit instructional approach. A greater prevalence of formative evaluation elicited through class discussion and questioning, refined the explicit instruction of concepts to address gaps in student understanding. The refinement of this instruction then led to a greater prevalence of student-led and informal learning experiences in different communities of learning (individual, pair and small class) and spatial settings, with teachers moving about the space able to provide more focused instruction and feedback. In fact, greater differentiation of learning was observed in an ILE, not because of the spatial design, but the process of evaluation providing the impetus for reflection, feedback and professional growth for teachers.

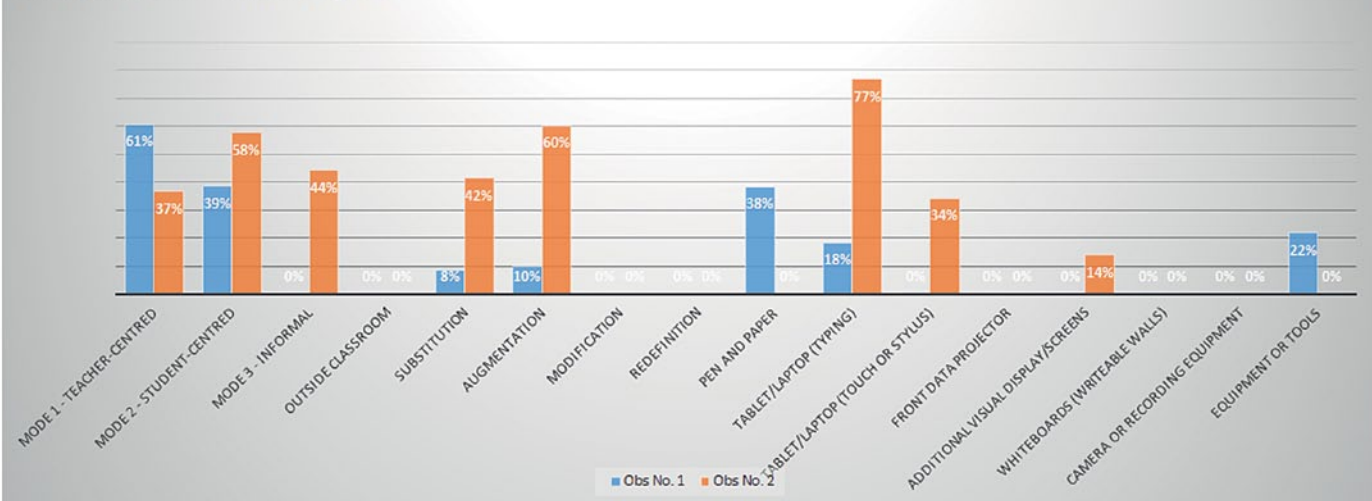


Communities of learning

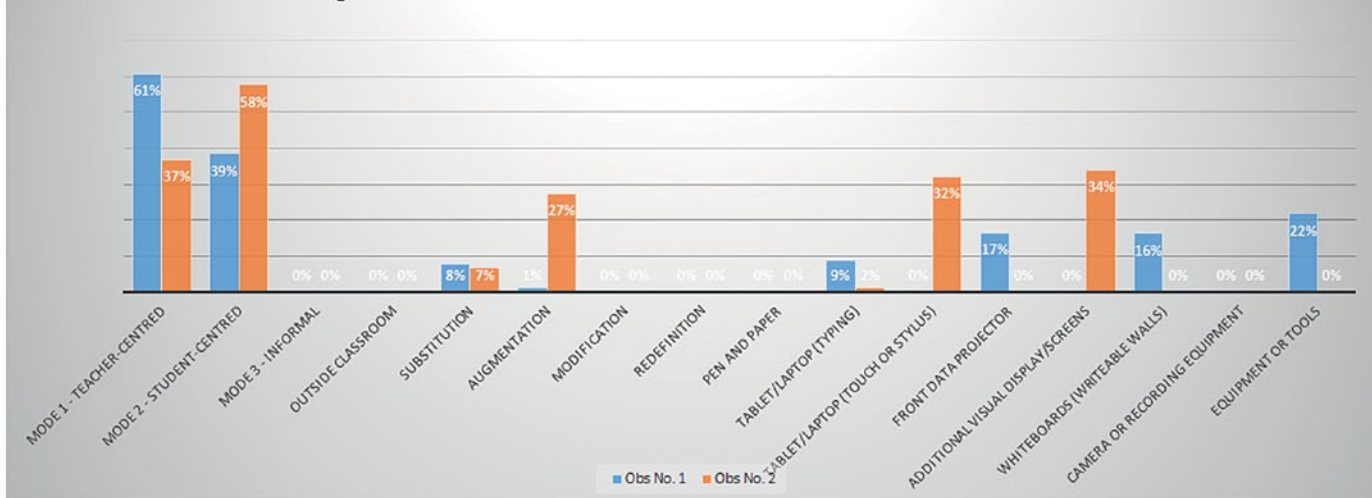


Outcomes of the partnership between Churchie and LEARN emphasises the benefits of a practice-based evaluative approach informed by sound research principles. The relationship has delivered a suite of effective evaluation tools, for example the Linking Pedagogy, Technology and Space (LPTS) Observational metric. This provides personalised feedback to teachers through real-time lesson visualisations of teacher and student activity and behaviour. It has also helped develop the Churchie Learning Analytics Program, which monitors whole class and individual student work ethic, their academic progress, and links these to their cognitive ability and emotional intelligence. More importantly, the relationship has supported a perceptible change in the teaching culture of the school. Increasingly, teachers are engaged in collegial conversations, collaboration and support with their peers about their pedagogical practice. Teachers are more perceptible to opening up their classroom to peer observations and engaging in conversations about their practice informed by observational feedback. There is a growing cohort of teachers in this school actively discussing how different technologies and spaces affects their practice, assists student learning experiences.

### Student use of technologies



### Teacher use of technologies



Pair observation feedback to teachers provided by the Linking Pedagogy, Technology and Space (LPTS) Observational Metric



### The ILETC project

This evolution of the evaluation of ILEs has facilitated the ILETC project. This four-year Australasian project brings together researchers in education, architecture and design, along with 15 partner organisations, to examine what support is required to assist teachers to maximise space as a component of their pedagogic practice, and to examine the impact of this 'change' on student learning. This project aims to address the issue suggested in the opening paragraph of this article; that is, it will bridge the gap between the educational potential of ILE design and their actual performance, and do so working with schools, government and industry.

Central to this issue is the critical question; are ILEs an agent of change in that they facilitate improved teaching, or are they catalysts for change in that they disrupt incumbent practices sufficiently to encourage the development of new teaching practices? This is an important question. It speaks to the direction of any relationship between ILEs and quality teaching practices. Preliminary evidence suggests that ILEs are not currently acting as an agent for change (as some may have hoped – they rarely trigger pedagogic change simply due to their existence). Few teachers are instinctively utilising their affordances. There is evidence that apart from a handful of examples suggests that teaching within ILEs largely remains the 'same old same old'. The findings of the Churchie studies suggest that when teachers transition from traditional to ILEs, they are often hindered by poor spatial competency. With little change to the spatial layouts to their educational experiences and no prescribed professional development or training in teaching preparation courses or degrees, often limits their capacity to know how to understand and effectively use physical instructional space for a pedagogical advantage.

The ILETC project works from the assumption that there exists a multitude of 'best practice' in this regard, many teachers are doing it well, but these are infrequently disseminated to the field, and many 'best practice' gaps exist that require strategies to overcome. However, any relationship between ILE use and quality teaching practices is unlikely to be all one direction or the other. Some confluence is likely. ILETC will build an evidence base of 'what works' regarding teacher transitioning to ILEs, design additional strategies to fill perceived gaps, and test this suite of strategies for effectiveness and applicability across the widest possible array of Australasian schools.



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Architect: Brand and Slater